

## REMARKS

Reexamination of this application is respectfully requested.

The examiner has objected to the title of the invention as being non-descriptive. Applicant has amended the title to read "TRANSONIC HULL AND HYDROFIELD, MULTIHULL AND ASSOCIATED CONTROL SURFACES" which is indicative of the invention, and therefore is believed to resolve the objection.

In preparing the response to first office action dated 01/12/05, applicant has noticed that his specifications have inadvertently omitted the description of Figs. 48 and 49. These figures are listed in pg. 7 of the Application. Before continuing to discuss the amendment in response to examiner's action of 01/12/05, applicant would like to submit an amendment to add to applicant's specifications the description of Figs. 48 and 49 which were mistakenly left out, with care not to add new matter. There are also added new claims directed to Figs. 48 and 49, and the examiner's review of these claims is much appreciated.

Claim 6 was rejected under 35 U.S.C. 112, first paragraph. Claims 1-5 were rejected as being anticipated by Fuglsang et al. Claim 8 was rejected under 35 U.S.C. 102(b) as being anticipated by Ibata et al. Claims 11 and 12 were rejected under 35 U.S.C. 102(b) as being anticipated by Doroftel. Claim 13 was rejected under 35 U.S.C. 102(b) as being anticipated by Andersson. Claims 14 and 15 were rejected under 35 U.S.C. 102(b) as being anticipated by Frigard. Claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over Ibata et al in view of Davis. Finally, claim 10 was rejected under 35 U.S.C. 103(a) as being unpatentable over Ibata et al in view of Davis as applied to claim 9 above, and further in view of Doroftel.

## 1. OVERCOMING REJECTION OF CLAIM 1

Claim 1 has been rejected on Fuglsang. Fuglsang specifies that his inventions in its broadest sense requires that “the draft of the vessel lessens when the vessel is moving at speed due to dynamic lift developed by the movement and whereby because of the change of draft the outer hulls have little of any effect on buoyancy of the vessel when moving at speed”. (Pg. 6 of 11, paragraph 4).

1      Remarks:

2              Fuglsang does not specify the outer hulls are planning hulls in that statement, or in any other  
3              part of his specifications or claims.

4              The dynamic lift required by Fuglsang is clearly specified by him in either: “one foil or the  
5              like to provide a lifting surface” (pg. 6 of 11, paragraph 9), showing three alternatives of foils in his  
6              Fig. 4: items 25, 25A, and 25B extending width wise below water between his central hull and his  
7              outer hulls (Fuglsang pg. 8, paragraph 6) as shown also in his Fig. 4. These are not planning hulls,  
8              and respectfully, are no reason to reject claim 1, which claims only outer hulls of planning type,  
9              central being displacement.

10              Fuglsang also states, in the matter of planning hulls “alternatively the lifting surface may be  
11              provided by making the central hulls, at least, a planning hull.” Therefore, in the hypothesis that the  
12              outer hulls of Fuglsang were planning hulls, then Fuglsang would teach the use of a trimaran with  
13              three planning hulls, which is different in kind from applicant invention, and his claim 1, which  
14              claims a central hull of displacement type and outer hulls of the planning type. Consequently, in  
15              applicant’s view claim 1 should be allowable over Fuglsang. Applicant furthermore respectfully  
16              indicates that all the art cited by examiner supports the uniqueness of claim 1 as shown in the  
17              following table, in which the length/beam ratio of center hull and length/beam ratio of outboard hulls  
18              of the three patents cited by examiner, clearly show in their planviews, illustrate that of hulls of  
19              trimaran with planning potential at speed for dynamic lift is approximately 4.5, and hulls of trimaran  
20              of displacement type have length/beam ratio of approximately 9 or larger.

Patents	Fig.	Center	Hull			Outer	Hull			(L/B Out/ (L/B)Center
		L	B	L/B	TYPE	L	B	L/B	TYPE	
Fuglsung	2	7	0.8	8.75	Disp	4.2	0.45	9.3	Disp	1.06
Fuglsung	11	6	1.42	4.22	Plane	4.8	0.50	9.6	Disp	2.27
Frigard	12	4.9	1.05	4.66	Plane	3.28	0.62	5.29	Plane	1.13
Doroftel	4.a	7.5	1.10	6.82	Disp	2.70	0.24	11.25	Disp	1.65

25              The table illustrates clearly the following: art cited by examiner does not show outboard  
26              hulls of trimaran with planning when the center hull is displacement type. Moreover, the potential  
27  
28

1 ratios of length/beam of outboard hulls to length/beam inboard hulls are in all these cases greater  
2 than one, and not less than 1 (one) or substantially less than 1, as is uniquely claimed by applicant.

3 According to the above analysis, applicant has amended claim 1 to make it allowable over  
4 35 USC 112 by adding well understood structural parameter of length, beam and length/beam ratios,  
5 over Fuglsang, or Fuglsang together with other art quoted, by specifying that the quotient of length  
6 / beam ratio of outboard hull divided by inboard hull is less than one (1), as is evident from  
7 applicant's Fig. 29 and its pgs. 63 line 27 and 20, which illustrate that ratio as  $6/5 = 0.7$ . Applicant  
8 respectfully insists amended claim 1 is now allowable.

9 Claim 2 is allowable as dependent on claim 1 and further allowable in that it specifies that  
10 the outboard hull is capable of dynamic lift with a center displacement hull, and with speed/length  
11 ratio of central hull is substantially less than that of the outboard hull, as indicated in applicant's pg.  
12 64 for Fig. 29, line 3.

13 Claim 3 and 4 are considered allowable as dependent on allowable amended claim 1. Noting  
14 examiner's remark that "Transonic" fails to define a specific structure, claims 3 and 4 now include  
15 a specific structure clearly supported in specifications pg. 19 lines 1-3. TH is characterized by  
16 absence of surface wave making sources such as shoulder, midbody or quarter's curvature in plan  
17 view, and relation of draft forward to beam aft, for example 26 in Fig. 12a to 62 in Fig. 14a, or scaled  
18 Figs. 18c forward draft to Fig. 16 below it (should have read Fig. 18G; to be amended now since Fig.  
19 16 is prior figure).

20 Claim dependent 5, which relates to wings of Fig. 20 is allowable upon allowability of Claim  
21 1. Nevertheless, to distinguish clearly from some aspects of Fuglsang, Claim 5 is amended to specify  
22 its wing is above water.

23

24 On allowability of amended claim 6

25 Claim 6 was rejected under 35 UCS 112. It is also stated that the propulsion arrangement  
26 of claim 6 is lacking in disclosure.

27 Claim 6 is directed to Figs. 28b in a catamaran and 28c is a trimaran. Fig. 28b is described

1 in detail in pg. 62 lines 2-19. Fig. 28c is described in detail in pg. 62 lines 20-25. The propulsion  
2 arrangement is described in pg. 63 lines 9-13 “five water jets of group 332 in Fig. 28b” or “a pair of  
3 two water jets 346 and 348 in Fig. 28c” (lines 12-13 pg. 63), which is qualified in that “for smaller  
4 multihulls”, the “power can be made with batteries of outboard marine engines” (pg. 62 lines 24-25).

5       Applicant respectfully indicates that Figs. 28b and 28c are a unique invention combining:  
6       Outside surfaces parallel to direction of motion as 322 in Fig. 28b, with minimal or no wave making  
7       and minimal friction drag (pg. 62 lines 7-8). Inboard flows between internal sides of the multihull  
8       with convergent flow in plan view as in 326 and 324 in Fig. 28b, tending to cause drag due to  
9       adverse interference tending to raise level of water and added wetted are (pg. 62, line 9).

10       Unique favorable interferences between the rear of the hulls be means of “water accelerating  
11       propulsion means 330 which recover energy from 324 and 326, reducing their drag contribution” pg.  
12       62 lines 15, 16. To overcome rejection on 35 U.S.C. 112, claim 6 has now been amended to read  
13       the above features.

14

15 On the allowability of amended claim 7.

16       This claim as amended is directly supported by Figs. 35 and Figs. 44 with a language that  
17       specifies the unique configuration and is considered allowable over the art.

18

19 On the allowability of amended claim 8.

20       This is directed to Figs. 42 and Fig. 43. Applicant agrees that battery power is anticipated  
21       by Ibata who uses a marine propeller. However, the uniqueness of the Figs. 42 and 43 is the use of  
22       an air propeller, or a ducted air propeller, to provide auxiliary propulsion for a man powered craft,  
23       a peculiar combination of selective electric driven aerodynamics and man powered hydrodynamics  
24       which is not at all obvious from prior use of air propellers such as in hovercraft or flat planning boats  
25       for swamps, using gas turbines or internal combustion engines as is discusses in pg. 70 lines 13-22.

26       Amended claim 9 is dependent on 8 and is clearly allowable, as well as claim 10.

27       Claims 11, 12, 13, 14 and 15 have been canceled.

New claims 16 to 27 are directed to multihulls and are considered clearly allowable by reasons of the above arguments and corresponding language used.

New claims 28 to 39 are directed to Figs. 48 and 49 on articulated flaps. Their respective specifications are now included by amendment, without adding new matter.

Applicant has invented a multihull transonic hull which is superior to those hulls found in the prior art. As such, it is believed that this invention is deserving of protection, and the granting of such protection is respectfully requested.

1           Applicant is mailing this amendment after expiration of the three month response period but  
2 within the third month's extension of time permitted by 37 C.F.R. § 1.136 and accompanied by the  
3 fee set forth in 37 C.F.R. § 1.17(a). This application is thus believed to be in condition for allowance  
4 of all claims remaining herein, and such action is respectfully requested.

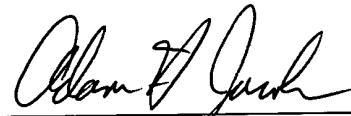
5           Respectfully submitted,

6           

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13           CERTIFICATE OF MAILING

14           I hereby certify that this Amendment for a TRANSONIC HULL AND HYDROFIELD III-A,  
15           Serial № 10/774,728, was mailed by first class mail, postage prepaid, to Mail Stop Non-Fee  
16           Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 11th  
17           day of July, 2005.

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20           Adam H. Jacobs